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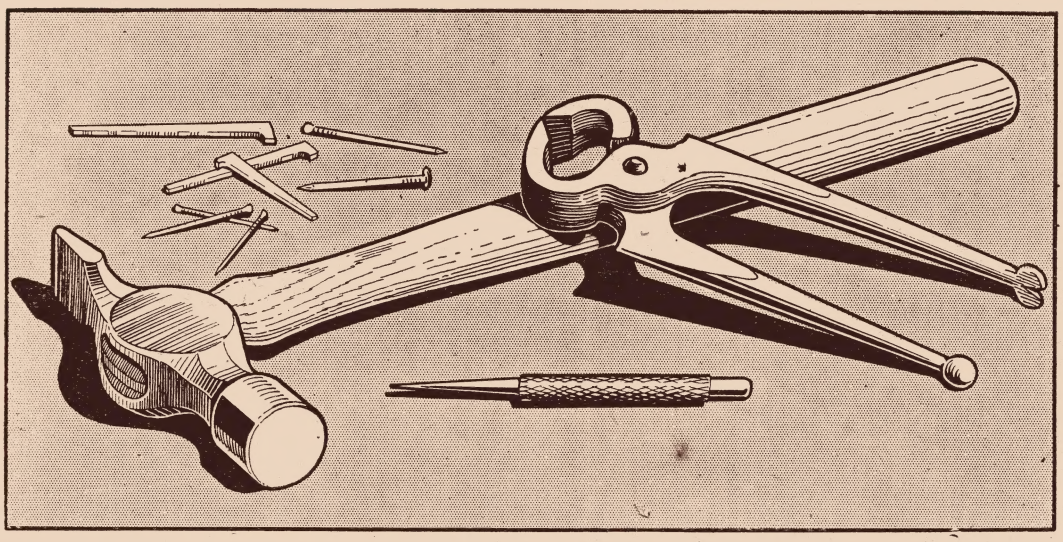

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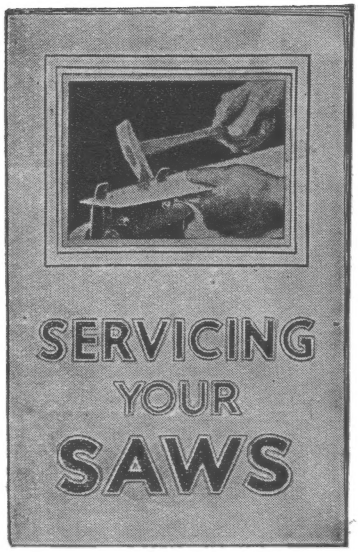

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WOODWORKER

VOL. 48 APRIL 1944 No. 605

Everyday Tools

There are some tools that one is inclined to take for granted. They are practically always in use in one way or another so that it seems impossible that there can be anything fresh to learn about them. In this and later articles we discuss some of them. You will probably find something here that you did not know about before.

THE HAMMER

PERHAPS the most obvious of all bench tools is the hammer. It comes in for innumerable jobs apart from its main one, that of knocking in nails, so that it is worth while considering closely a tool which is used for so many jobs.

The Hammer.—So far as woodwork is concerned you need consider two types only: the Warrington or the London pattern, and the claw hammer. For furniture making the former is required, whilst the claw type is preferable for large carpentry. The point is that the cross peen of the Warrington or London pattern (the latter is sometimes known as the Exeter pattern) is invaluable for starting small nails, and for inlay work (here it is used for pressing down bandings and lines). On the other hand, you don't use small nails for carpentry so that the peen is of little value, whereas the usefulness of the claw for withdrawing nails is obvious.

Weight is a matter of some importance. Remember that a heavy one, although exerting considerable force, is very tiring if used for any length of time. It is therefore a matter to be decided by the average work you do and your own physique. Most hammer sizes are known by numbers, and, as these vary with different makes, it is of little value to give them. Occasionally they are known by the weight of the head, but it is seldom that any man is able to weigh his hammer head separately. We therefore suggest the following weights, including the handle:

Cabinet work: General use, Warrington or London pattern, 11 oz. Tack hammer, pattern maker's type, 6 oz.

Carpentry: General use, claw hammer, 1 lb. 11 oz. For plugging walls, etc., Club hammer, 2½ lb. A London or Warrington hammer about 14 oz. is also useful for panel pins, etc.

Loose Head.—The only serious fault a hammer is likely to develop is the loosening of the head. The principle of fixing is that of the wedge, the eye of the head being larger at the outside than in the centre (see Fig. 1). Thus, when a wedge is driven into a saw kerf in the end of the shaft the wood is splayed out and makes a secure fixing—in fact it tends to tighten with use because the centrifugal force set up when the hammer is swung forces it against the wedge shape.

Loosening may be caused, however, by shrinkage, or be the result of vibration. If the wedge has come out, strike the shaft on the bench so that it is on as far as it will go, and drive in a new wedge. Should the wedge still be in and prove difficult to remove, a metal wedge must be knocked in. It used to be possible to obtain these ready made, but they may now be a difficulty. However, you can file up a wedge from iron and drive it in (A, Fig. 2). A nail is of little value because it is too local in its action.

If you do use a nail, pick one of the type (B) which is roughly tapered in shape. Take a 3in. or 4 in. one, cut it down to about ¾ in. long and file it to a flat taper as at C. A long nail is of no advantage because it is only the opening-out force at the end which is of any value.

Using the Hammer.—In use, hold the shaft at the end, not at the middle or near the head, otherwise you will lose a great deal of the force. Fig. 3 shows the wrong and right ways of holding it. The action is a combination of wrist and elbow movement. For work in which it is important that the surface is not damaged cease to strike the nail when the latter is nearly home and finish off with the punch.

Whilst speaking of the punch, it is always an advantage to use the hollow-face variety for such nails as panel pins, oval brads, and so on. It is less liable to jump from the nail and damage the wood. For large cut nails you cannot do this, and the square type of punch is preferable. Use the right size of punch for the nail. A large one makes an unnecessarily large hole, whilst a small one is liable to be damaged by doing work which is too heavy for it.

Very small nails usually require a

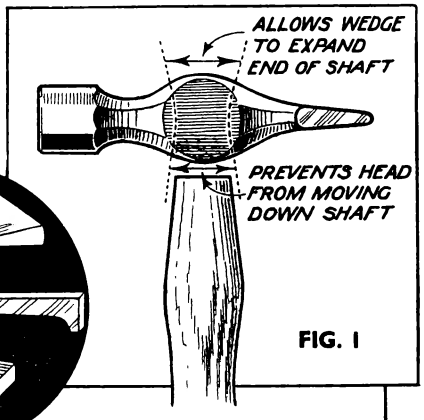


FIG. 1. HOW HAMMER HEAD IS FIXED ON SHAFT. Note that the double taper prevents head from flying off, and also from moving down the shaft.

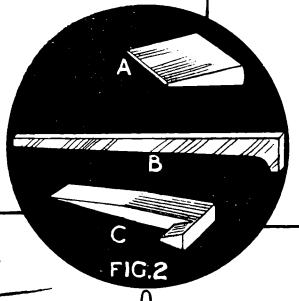


FIG. 2. WEDGES. Proper wedge is given at A. C is wedge made from nail shown at B.

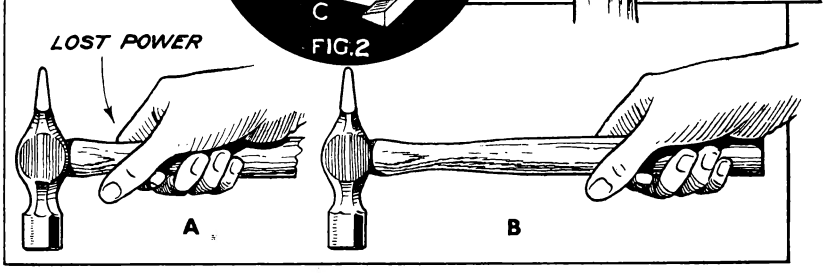


FIG. 3. INCORRECT (A) AND CORRECT (B) WAYS OF HOLDING HAMMER. If held near the head as at A a great deal of energy is wasted. At B the moving mass of the head has greater much power.

Keep your hammer face Clean; it avoids bending nails

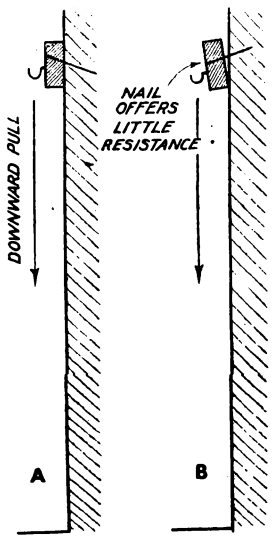


FIG. 4

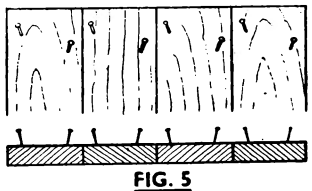


FIG. 5

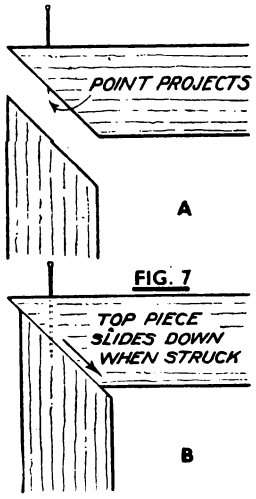


FIG. 7

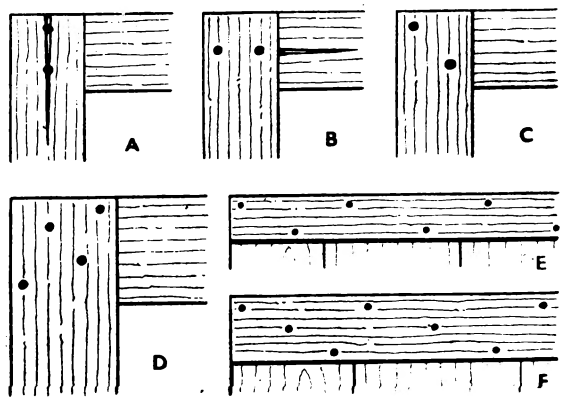


FIG. 6

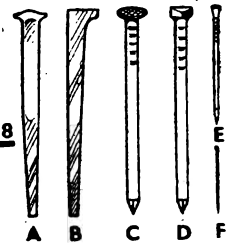


FIG. 8

specially made punch—you cannot normally buy one small enough. Any suitably shaped piece of steel filed to a fine point and tempered to a brown shade can be used. It is important that the end which touches the nail is flat. If rounded it is liable to fly off the nail.

Bent Nails.—One of the commonest causes of nails bending over when being driven in is a dirty hammer face. Glue is a great offender. Perhaps you have just knocked together a carcase and are driving in a nail. What happens is that there is no friction between the hammer face and the nail so that the nail bends over.

Dovetail Nailing, Etc.—Suppose you have to drive a nail into a wall fairly high up, and it has to support a fair weight. The direction in which you drive it can be made to increase its strength. In Fig. 4, at A, for instance, the nail by being driven in downwards resists the downward pull. If it were put in the other way it would be liable to pull out as at B.

You probably know the old trick of "dovetailing" your nails; it can certainly make a lot of difference to the strength. In Fig. 5, for instance, a series of boards is fixed to a wall batten or framework, and the nails are put in askew in alternate directions.

Staggering Nails.—We all know that some woods are specially liable to split when nails are driven in, and this liability is increased when two or more nails are entered in the same line. When feasible, then, it is as well to stagger them. If they are a fair distance apart it does not matter much, of course. Remember that you have the lower piece of wood to consider as well as the top piece.

FIG. 4. NAILS DRIVEN AT AN ANGLE DOWNWARDS RESIST THE DOWNWARD PULL (A).

FIG. 5. „ DOVETAILED „ NAILS.

FIG. 6. NAILS IN LINE AS AT A AND B ARE LIABLE TO SPLIT. BY STAGGERING THEM AS AT C, D, E, AND F THE RISK IS MINIMISED.

FIG. 7. NAILING A MITRE. HOW TO PREVENT TOP PIECE SLIPPING.

FIG. 8. TYPES OF NAILS. A, CUT CLASP NAIL; B, CUT BRAD; C, FRENCH NAIL; D, OVAL WIRE NAIL; E, PANEL PIN; F, VENEER PIN.

At A, Fig. 6, the corners of a framework are nailed together. It is the sort of thing that might occur in a packing case. Positioning the nails as here might easily cause a split in the top piece. If entered as at B the lower piece might suffer. By staggering as at C, however, neither is liable to split. At D the same idea is applied to four nails. E and F are further examples of the same idea.

Mitreing.—A difficulty that sometimes occurs is that of slip when nailing a glued mitre joint. Owing to the wet glue the top piece is liable to slip down over the other. A hint to overcome the trouble is given in Fig. 7. First knock in the nail so that it projects the merest trifle at the joint as shown at A. This will prevent initial slip when the pieces are first put together and the hammer used. Since the result of nailing is almost certain to cause a certain amount of slip, however, it is as well to start the upper piece a trifle high as at B. The amount depends upon the size of the work. For medium sized mouldings about $\frac{1}{16}$ in. is about right. Thus the final blows with the hammer bring the pieces together level.

Kinds of Nails.—There is a tremendous variety of nails made for various purposes. For straightforward woodwork, however, you need not go beyond those shown in Fig. 8. So far as carpentry is concerned the cut clasp nail at A is probably the most useful because of its great strength. Next is the cut brad at B, a nail which is made in two weights, the heavier for general work, and the lighter for floor boarding. For the latter purpose it does not make so large a hole.

The french nail, too, is used, though it is not so strong (C). This is used chiefly by packing case makers and for similar work where the large head is no objection. Cabinet makers and joiners are more partial to the oval wire nail at D for large work. It does not make so large a hole as the french nail and has a neater head. On the other hand, it has not so strong a grip. For general smaller work the panel pin at E is generally used for show work.

For really fine work the veneer pin (F) or the still finer finishing pin is used. (260)

MAKING and FITTING a WINDOW SASH

In making a garden shed it is not unusual for secondhand sashes to be used in order to save trouble and expense ; or possibly it may be that the worker believes that it is beyond his skill to make the sash himself. Frequently it is fitted without regard to the appearance of the building, whereas by taking a little extra trouble by making a frame and sill, the exterior of the building can be considerably improved, at the same time be made more weather proof. Here the method of construction is explained.

THE stuff for a sash frame can be purchased already moulded. The frame is put together with mortise and tenon joints, the particular form of joint being shown in Fig. 1. The moulding introduces a little difficulty, but this need not deter the worker. It will be found that the fillet *a* is level with the rebate *b*, consequently, in setting out the tenon, a cut line can be squared round the stuff for marking the shoulders. The square member *c* of the moulding is usually one-third the thickness of the stuff, therefore a mortise gauge can be set to the width of member *c* for setting out the tenon and mortise.

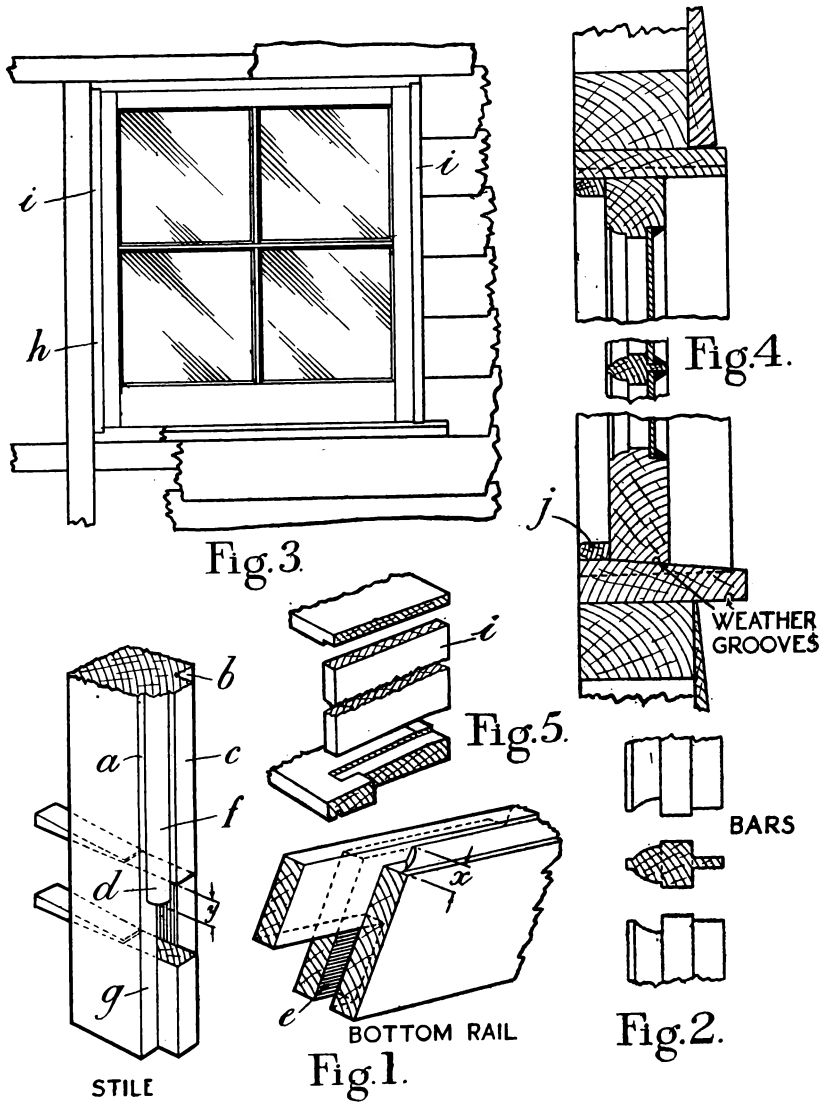
Franking.—It will be noticed that the joint is not haunched in the usual way but that a portion of the member *c* is allowed to remain. This portion is received in a housing *e* formed in the tenon part of the joint. This operation is termed " Franking."

Scribed Moulding.—The ovolo member *f* of the moulding is scribed, that is to say, the ovolo on the tenon portion of the joint is cut away so as to fit over the projecting portion of the ovolo on the mortise part of the joint. Thus, when the joint is put together, the ovolo member will appear as if mitred at the angle.

The scribing is done in the following manner. Pare away the wood at *g*, leaving the ovolo projecting beyond the mortise to a distance at least equal to the width of the ovolo. On the tenon portion mitre the ovolo at 45 degrees and pare slightly hollow with a gouge. Care should be taken to see that the dimension *x* is not less than the dimension *y*. At this stage put the joint together temporarily, when it will be found possible to mark a line on the ovolo of the tenon portion, using the ovolo on the mortise portion as a guide. Thus by further paring with the gouge it will be possible to get the two curves to agree, resulting in a close joint. The scribing should line up with the line of the mitre.

If it is intended to hang the sash from one side, the horizontal bar should run through, the vertical bar being tenoned and scribed to the horizontal bar as shown in Fig. 2. The reverse arrangement applies if the sash is hung from the top rail. On the completion of the joints, the sash is put together with thick paint and wedged in the usual manner.

Window Frame.—The frame *h*, Fig. 3, should project slightly beyond the weather boarding of the shed as shown in Fig. 4, and the sill is allowed to project on both sides as indicated in Fig. 3.



ELEVATION, ENLARGED SECTIONS, AND CONSTRUCTION DETAILS.
It will be seen that the tenon, instead of being haunched, is housed away to fit over the square member of the stile. This is known as franking. The tenon runs right through and is wedged.

It will be noticed on referring to Figs. 3 and 5 that the linings *i* are rebated into the head and sill. This is perhaps an unnecessary refinement but it does help, when nailing the frame together, to ensure that the window opening is the correct size.

A clearance equal to the thickness of a penny should be arranged between the sash and the frame. The weather grooves, shown in Fig. 4, should not be omitted, as these help to prevent the entry of moisture to the interior of the shed. At the inside of the window opening stop beads *j*, Fig. 4, are shown. These can be mitred at the angles. (250)

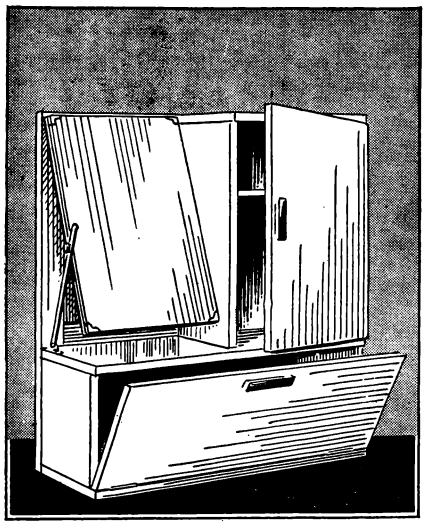


FIG. 1. IDEAL SHAVING CABINET. It can be made in any whitewood and finished by painting. Construction is on the simplest lines. 18 ins. wide by 20 ins. high.

For Bathroom or Bedroom

Combined Cupboard, Locker, and Mirror

Two of these pieces, made in whitewood and given a painted finish, were used for different purposes. One became a bathroom fitment, the other stood on a low dressing-chest in a small bedroom. Constructed in the simplest way and at comparatively small cost, they have proved astonishingly useful.

THE locker has an interior space of about 17 ins. by 6 ins. by 6 ins.; the cupboard (inside) measures 12 ins. by 7½ ins.; the frameless mirror is 12 ins. by 8½ ins. Softwood was used throughout.

Back may be framed up with bridle corner joints, mid cross-rail being half-lapped. Note that the locker top comes immediately below this rail; its exact position is thus important. The thin plywood panels are rebated in.

Locker ends, batten, and top are glued and screwed together. Later, ends and bottom are screwed to back. The top is cut to fit around back stiles and is screwed to mid cross-rail from below. Fall front (opening *over* the ends) is hinged to bottom and should be provided with a ball catch.

Cupboard sides are screwed to back and also (from below) to locker top. The inner side will be cut to fit around the rails and back on which it butts. Top is glued down and nailed. It is also screwed to back. The door, hinged at right hand, opens *over* sides and, like the locker, will have a ball catch.

Mirror.—As this is adjusted by a sliding brass stay, glass and stay should be procured before assembling. In this way any eleventh-hour hitch is avoided. Back the mirror (a plain glass will do) with a ¼ in. or ⅜ in. board, securing it with the usual metal corner clips. Hinge to top back rail, taking care that it clears the cupboard side. (251)

CUTTING LIST

		Long ft	*Wide* ins.	*Thick* ins.
2 Back stiles	..	1 8	1½	⅝
3 Back rails	..	1 6	1½	⅝
1 Back panel	..	1 4	10½	ply
1 Back panel	..	1 4	7	ply
2 Locker ends		6	6½	⅝
1 Locker top	..	1 6	7	⅝
1 Locker bottom		1 6	6½	⅝
1 Locker front		1 6	6	⅝
2 Cupboard sides		1 0½	6½	⅝
1 Cupboard top		8½	7	⅝
1 Cupboard door		1 0½	8½	½
1 Mirror back	..	1 0	8½	⅜

Allow for trimming. Thicknesses are net for softwood. If hardwood is used the locker and cupboard parts may be ½ in. or 9/16 in. thick.

(Continued from opposite page.)

Doors are framed up of stiles and rails 2 ins. wide, adding a mid muntin. Panels are overlaid and should be glued on and beaded in behind. Cut the panels so that the framework shows a margin of 1½ ins. or 1⅝ ins. all round. Drawers are lap-dovetailed at front and through-dovetailed at back.

Plinth (O, P) may be rebated or mitred and tongued at front. The back rail is dovetailed on as shown in Fig. 3. Fix glued blocks at all four corners. (77)

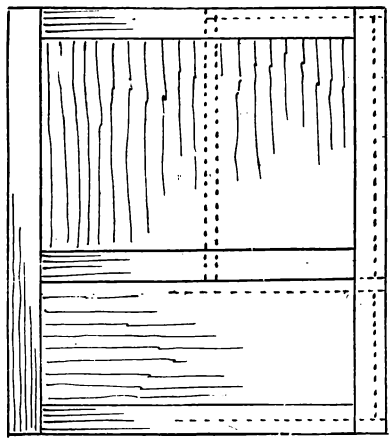


FIG. 2. FRAMED BACK DETAIL.

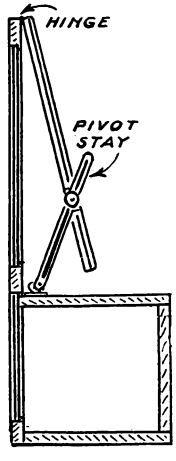


FIG. 3. SIDE SECTION.

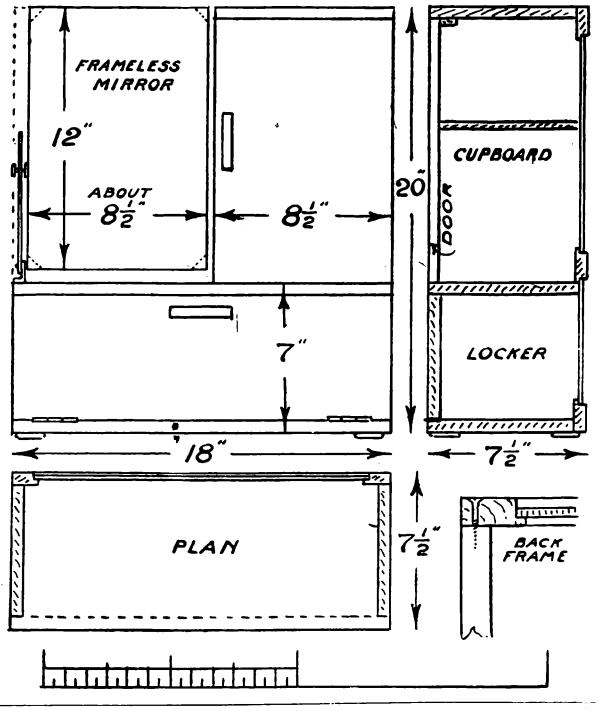


FIG. 3. *(Right).* **FRONT ELEVATION, SIDE SECTION, PLAN, AND ENLARGED DETAIL OF BACK.**

Mixed woods can be used since the whole is finished with paint.

DRESSING TALLBOY

For the small room

Occupying the very minimum of floor space, this piece is designed for the small bedroom—either lady's or gentleman's. The lift-up lid reveals a mirror, with shelf space for brushes, etc., below. There are two drawers, with 4 ins. and 5 ins. heights, the lower cupboard measuring about 19 ins. wide by 23 ins. high inside.

CUTTING LIST

		Long ft.	ins.	Wide ins.	Thick ins.
(A)	4 End stiles	3	2	2	¾
(B)	2 End rails	1	3	4½	¾
(C)	4 End rails	1	3	2	¾
(D)	2 End panels	1	9½	12	3/16 ply
	2 Ditto		9½	12	3/16 ply
(E)	3 Top rails	1	9	2	¾
(F)	3 Bottom rails	1	9	2	¾
(G)	2 Drawer rails	1	9	2	¾
(H)	Bottom	1	8	14½	¼ ply
(J)	Top	1	8	14	¼ ply
(K)	Back rail	1	9	2½	¾
(L)	Lid strip	1	9	2½	¾
(M)	Lid	1	9	14	¾
(N)	Lid front	1	8	2⅝	¾
(O)	2 for plinth	1	8½	2	⅞
(P)	2 Ditto	1	3	2	⅞
	Carcase back	2	11	21	¼ ply
	4 Door stiles	1	11	2	¾
	4 Door rails		10	2	¾
	2 Door muntins		8½	1¼	¾
	2 Door panels	1	8	7	3/16 ply
	Drawer front	1	8	4	⅞
	Ditto	1	8	5	⅞

Lengths allow for fitting, but thicknesses are net. Drawer sides, ½ in.; backs, ⅜ in.; bottoms, plywood. Allow also for drawer runners, guides, kickers, glue-blocks and an inside cupboard shelf.

ENDS are framed up with plywood panels grooved in. Note that top rail (B) is cut 4 ins. wide and that (when the ends are assembled) grooves ¼ in. wide and ⅜ in. deep are run across this rail as at X (Fig. 2). The grooves are returned on face edges and correspond with the ¼ in. by ⅜ in. rebate cut on under edge of lid front (N, Fig. 2). Both ends are dovetail-slotted for bottom rails (F) and mortised for tenons on top rails (E) and drawer rails (G). They are also rebated for the carcase back (ply) unless it is preferred to fit this over all.

The carcase is assembled by fitting top and bottom rails (E, F), drawer rails (G) and top back rail (K), this latter being lap-dovetailed. Drawer runners, guides and kickers will be added as shown. It is desirable to have a dustboard under the lower drawer. An inside cupboard shelf may rest loose on fillets.

Bottom (H) and top (J) may be of ¼ in. plywood, preferably with front edges lipped. The cupboard doors close on the bottom, whilst the top is likewise set in to permit of the lid front (N) clearing it when down.

Lid.—The construction of this is seen in Fig. 3. The front edge of lid proper (M) is rebated to take the front (N). As already indicated, this front (N) is rebated to agree with grooves (*x*) cut in ends. The lid is hinged (with a pair of 2 in. brass butts) to its fixed back strip (L), which may be thumb-slot screwed to back rail (K). It is well to fit neat lengths of glued block in the two angles as shown. On the finished piece the grooves (*x*) make a pleasant break between the drawers and the shallow well above. A brass bureau stay may be fitted to the lid if desired.

(*Continued on opposite page.*)

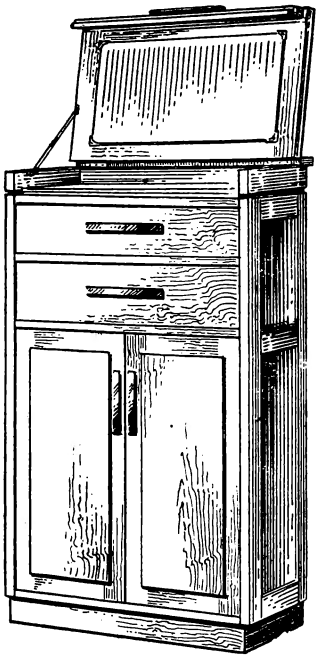


FIG. 1.

MAXIMUM ACCOMMODATION
Every inch of space is used to advantage. Main sizes are: Height 3 ft. 4 ins., width 1 ft. 9 ins., depth 1 ft. 3 ins.

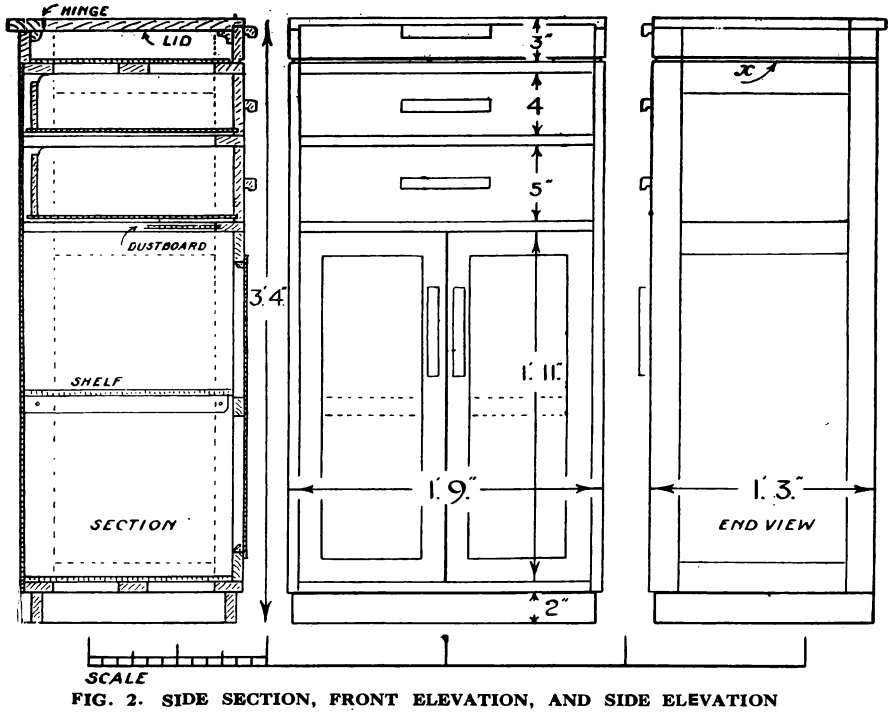


FIG. 2. SIDE SECTION, FRONT ELEVATION, AND SIDE ELEVATION

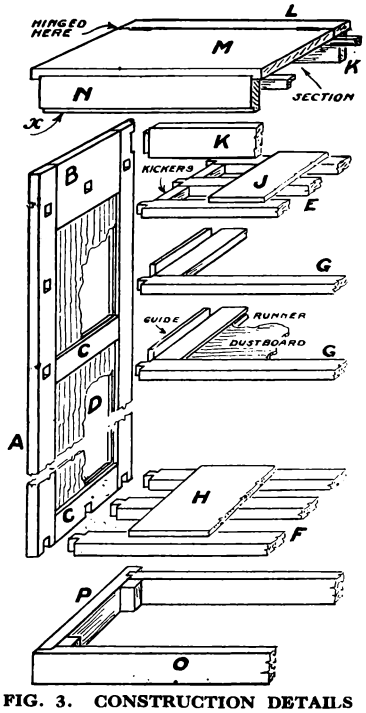


FIG. 3. CONSTRUCTION DETAILS

A Help to Healing

" The man who finds occupation in woodwork finds something that will absorb both hand and brain."

I WAS interested to read recently that plans are being made to introduce handicrafts into hospitals as a help to healing, on the principle that patients who have something to interest them and take them out of themselves will have a much better chance of making progress than if they are left alone to the passive occupation of just being ill. I have often, on this page, drawn attention to the real help provided by a handicraft as a relief from mental strain, and it is easy to see how it would have a tonic effect in the case of illness. For when we brood upon ourselves, our pains and problems, we shut ourselves into a very small world, of which the walls close in more and more till the very sunlight is blotted out, the spirit wilts and the poor body with it.

* * *

We all, to live happily, need to live objectively, that is to say, to be looking outside ourselves all the time. Worry and anxiety are the foul fiends which make this most difficult, and a great deal of the art of living comes in learning to deal with them. The only way is that of flight. Stand up to a worry, look it in the face and try to brave it out and not only will it give us no rest but it will grown larger and uglier all the time, but find refuge from it in some absorbing occupation and we do at least keep it within bounds.

* * *

It is queer how easily we become our own worst enemies. We like to proclaim ourselves " king of the castle," but we are kings of so little. Let things go wrong for us during the day and immediately our minds will fasten on these incidents to the exclusion of all else, exciting ourselves, hurting ourselves and bolstering up our own conceit. It is a poor world when we fill it with ourselves. But the world that has real things in it is a very different story, a world with real jobs to be done that will leave us feeling refreshed and renewed instead of gloomy and discouraged. The man who finds occupation in woodwork, for instance, finds something to be done that will absorb both hand and brain, and this is work in its most curative form. The men in prison camps know the value of such work. They know only too well the huge blank of boredom, the deadliness of the mind preying on itself, and they learn from stark reality what a blessing work can be.

* * *

The rest of us cannot complain of the lack of it at the present time. But it is all the more important, as *our* antidote, that we shall do the right kind of self-directed work in our leisure to counteract war weariness, anxiety, and mental strain. A zest for life is something that has to be earned, especially in war-time. A passive attitude is fatal, and modern conditions do undoubtedly foster passivity. All the more reason to fight the thing, and the best kinds of weapons are tools. For when we have tools in our hands we are down to fundamentals, to the primeval urge to make things. We become in our own way man the builder, man the creator, fulfilling our own deepest instincts, and the long-forgotten skill of our ancestors tingles in our veins. For, whatever the tool, men have acquired the necessary skill to use it, from the polished flint to the mediaeval carpenter's axe, which chopped out many a piece of rustic beauty. That is the one thing that cannot be taken from us while hands and brains are nimble, the one indestructable thing that can live beyond the wreckage of a world and build another.

(264)

Veneer Saw

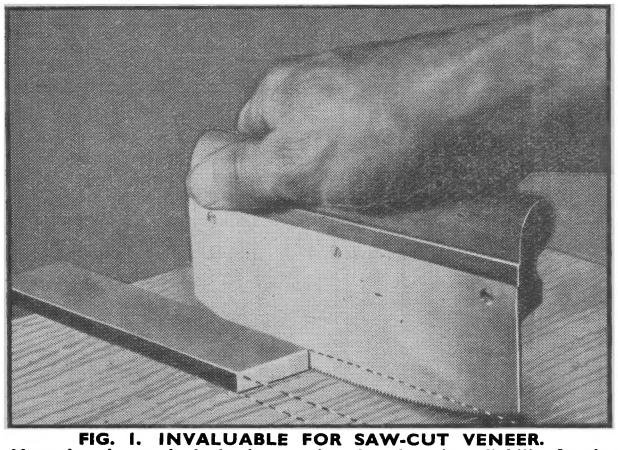


FIG. 1. INVALUABLE FOR SAW-CUT VENEER. Note that the toothed edge is curved so that there is no liability for the ends to dig in. The straight-edge is shown cut away for clearness.

APART FROM CUTTING THICK VENEER THIS SAW IS ALSO USEFUL ON THE MITRE-SHOOTING BLOCK.

THIS is a saw not often used nowadays because of the decline in the manufacture of saw-cut veneers. It is quite small, the blade being no more than 6 ins. long, and has a slightly curved cutting edge. It is used for cutting thick saw-cut veneer to size, the curve enabling it to be used straight across a piece of veneer without the ends digging in. It is purchased in the form of the blade only, the cabinet maker fitting a handle in accordance with his own fancy. The important point is that it is entirely flush at one side. The best way is to work a wide, shallow rebate along the handle and screw the blade in this. This means generous countersinking followed by rubbing down with the file to make the whole flush. It is important that the rebate is straight and not in winding because it is most necessary that distortion of the blade be avoided.

The saw has another use which is frequently neglected, that of cutting mitres in large mouldings. The moulding is held in the mitre-shooting-block and the saw used with its flush side down on the surface of the block (this exemplifies the necessity of the handle being flush). The moulding is then trimmed with the plane. To eliminate danger of injuring the face of the block it is usual to glue a piece of thin card over it. As it becomes worn it can be renewed.

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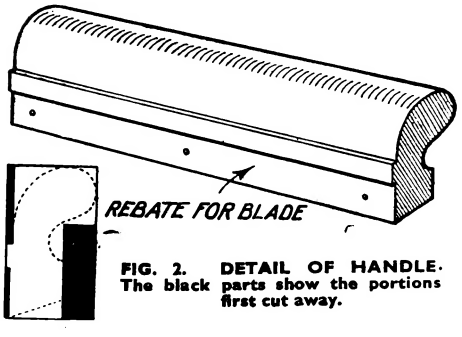


FIG. 2. DETAIL OF HANDLE. The black parts show the portions first cut away.

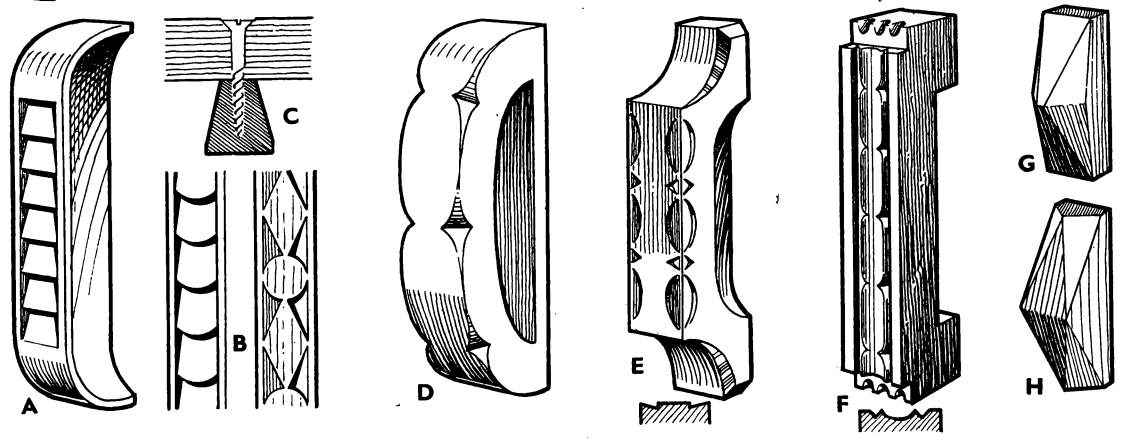


FIG. 1. SIX ATTRACTIVE DESIGNS FOR WOODEN HANDLES SUITABLE FOR DOORS OR DRAWERS
You can either leave the handles quite plain or you can decorate them with chisel or gouge cuts. There is practically no limit to the designs of the latter. Inlay can also be used.

Wooden Handles

IN some cases it is possible to make wooden handles in a single long strip, cross-cutting them at intervals to suit the length of handle required. The advantage of this, of course, is that it enables the section to be worked for all the handles in a single operation. The idea is shown in Fig. 2, at E, in which a stop is fixed to the cutting block to ensure all being the same size. This does not apply in every case, however, except for the initial squaring up of the material to the over-all section size. For instance, the hollowing at the back of the handle may be scooped out locally only, and this would obviously have to be worked individually.

The pattern shown at A, Fig. 1, is rounded at top and bottom, and, to give good finger grip, the sides are undercut as shown in section C. At top and bottom this undercutting runs out so that the same width in the handle is preserved throughout at the front.

The simple decoration consists of a series of sloping steps which can be cut with a narrow chisel. With pencil mark out the over-all length of the decoration, also the sub-divisions which give the steps. With a cutting gauge cut in at each side, carefully stopping the gauge at each end. Cut a slight chamfer on the inside of each of these lines, and, selecting a chisel to fit exactly between the gauge lines, chop vertically downwards. It is then merely a matter of sloping away the wood to form the steps. Various other decorative patterns could be made as at B in which gouges are used as well as a chisel.

At D the semi-elliptical shape is cut out and the surface trimmed. At measured intervals and with the chisel held at 45 degrees make a cut across the front edges. With a sharp chisel slope away the wood at each side so that a graceful shape is formed both at the front and at the side by the bevel so produced. The straight flat piece at the back could be omitted.

At E the main shape is cut and the undercutting formed at the back by a simple chamfer. To form the edge decoration make plain downward stabs with the gouge and ease away the wood at a slight angle, using either a very flat gouge or chisel.

A similar procedure is followed in F. Down the front two V cuts are formed with a flat hollow between. With the chisel a cut is made at the intersection of the curves and the wood sloped away as shown. Be careful to preserve the slope of the V grooves as they continue round the curves.

At G and H are two alternatives formed merely by bevelling the sloping edges.

Horizontal Patterns.—At A, Fig. 2, the front is cut with a series of hollows, a flat gouge being used. Whilst doing this gouging hold the wood firmly above a piece of flat hardwood so that any splitting-out tendency at the bottom edge is eliminated. The top edges are bevelled slightly. The hollow at the rear (see section) which gives a grip for the fingers can either run right through, or, preferably, be stopped at each end.

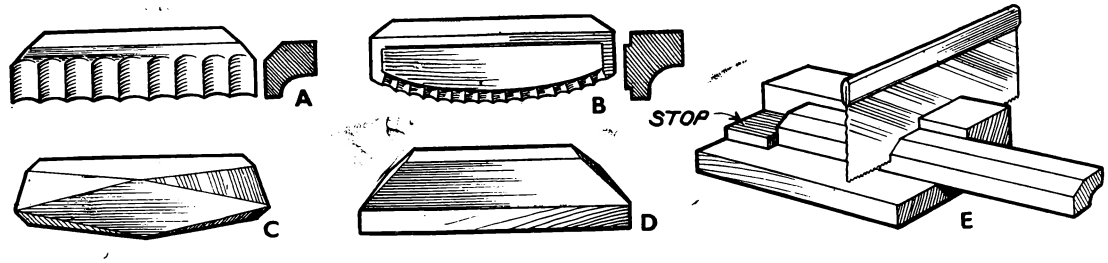
B has its lower edge curved and a small rebate is worked all round. Small scollops are cut into this rebate as suggested. The success of a job like this lie largely in the sharpness of the tool used for cutting the scollops.

C starts off by being rectangular. On the front the diamond shape is marked in pencil and the corners then bevelled away as shown. The depth of the bevels should be marked at the edges so that all are alike. They can be either left plain like this or they can be carved in the form of either a series of flutes or reeds or a combination of both.

D can be prepared in one long length so far as the main section is concerned. This can be cross-cut, the side bevel worked, and the back edge hollowed out to provide a finger grip.

The usual fixing for all these handles is by means of screws driven through either the drawer or door. Should there be an objection to this, however, the handles could be fixed by slot screwing.

(263)



HORIZONTAL DESIGNS APPEAR AT A, B, C, and D. E SHOWS STUFF BEING PREPARED IN LENGTH

SECTIONA

Sliding Door a

In the December (1943) Woodworker we showed t fall-door unit construction. In this article we deal w

FIG. 1. THREE ALTERNATIVE DESIGNS. WIDTH 2 FT. 6 INS.—3 FT. You have the choice of either sliding glass doors, sliding framed doors, or hinged framed doors. You can add to the sections at any time. There are three sections, top, intermediate, and plinth.

THE over-all dimensions and general construction of the carcases remain much as the open type of bookshelf given previously. The depth, back to front, has been increased by an inch or so to allow for the doors. As before, the lower sections have an internal height of about 12 ins., whilst the upper section or sections are 2 ins. less, say about 10 ins. high. The width may be anything from 2 ft. 6 ins. (see Fig. 2) to about 3 ft.

In this type of bookcase there are three distinct sections: (1) The base or plinth. (2) The bookshelf unit. (3) The top. A tier of four unit bookshelves make a very suitable height, Fig. 2, but there is no limit, bar the height of the room, to the number of units that may be built up. Each section is loose, and positioned by two or four dowels projecting from the section below, Fig. 3.

CONSTRUCTION FOR POLISHED PLATE GLASS SLIDING DOORS.

—**Base Section, Fig. 4.**—The front and ends are mitred at the corners and blocked inside. The ends are rebated for the back, glued and nailed together and blocked inside as the front. The extra trouble in making the dovetailed corner blocks, Fig. 4, is well worth while. The base must be very strong to carry the weight of books and the wood should not be less than $\frac{7}{8}$ in. thick finished. The base is set under at front and ends $\frac{1}{4}$ in.

Bookcase Sections, Fig. 3.—The ends should be $\frac{3}{4}$ in. thick and rebated at the rear for a thin back. This may be added later or, as a temporary measure, cardboard or cloth could be used. The two ends are connected by four rails, the two front rails being about $3\frac{1}{2}$ ins. wide while the back rails need be only 2 ins. wide. The top and bottom front rails are grooved for the glass to run, first very deeply for the $\frac{3}{16}$ in. thick separating bead (B), Fig. 5, and lastly with a shallower trench $\frac{3}{4}$ in. wide by $\frac{3}{8}$ in. deep. These grooves are worked right through from end to end, Fig. 3.

The rails are dovetailed to the ends. In between short blocks are screwed to the ends (D), Fig. 3. These help to keep the ends straight and enable the thin bottom (E) to be glued and pinned down. Insert fibre runners into the lower grooves for the glass doors to run on, Fig. 5. If unobtainable, use very hard wood or even strips of good lino, wax-polished, for the edge of the glass to glide on.

When ordering the glass doors, a full eighth of an inch cover at top and bottom in the grooves is sufficient. The doors can be taken out and inserted at any time by lifting them well up into the top grooves and dropping. The weight of the glass door keeps it in place. Do not forget to specify the grinding of finger grooves in each door, to pairs. See sketch, Fig. 1. Usually a little overlap is allowed for at the centre, say, about 1 in., and the ends may also be grooved to receive the glass doors, although not absolutely necessary.

The Top, Fig. 3.—This, as a plain board $\frac{1}{2}$ in. or $\frac{5}{8}$ in. thick, would be apt

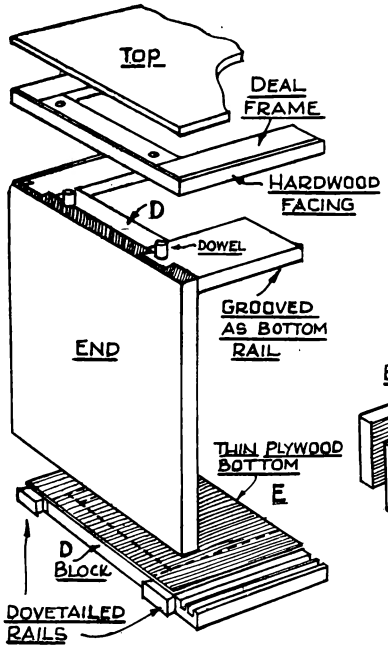


FIG. 3. CONSTRUCTION OF BOOKCASE UNIT AND TOP.

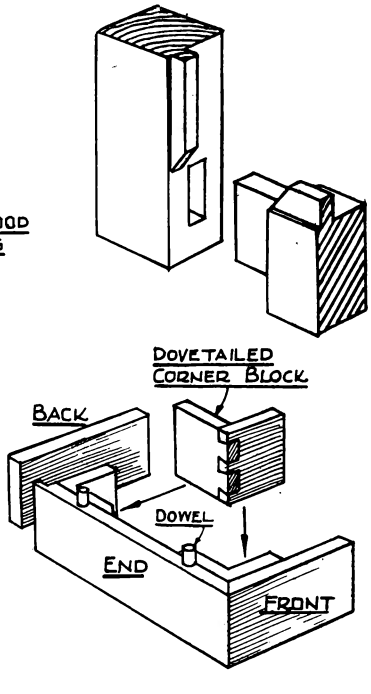


FIG. 4. PLINTH CONSTRUCTION AND DOOR JOINT

L BOOKCASES

nd Hinged Door Types

wo types of sectional bookcases, (1) the open bookshelf type, and (2) the ith (3) the sliding door, and (4) the hinged door types of sectional bookcase.

to curl unless clamped at each end. The method shown is to make a cheap wood frame. Face the front and ends with thin strips of hardwood, mitreing the corners, and glue and pin down a thin plywood top to the frame. The joints where the sections meet could be slightly bevelled to form a fine V'd joint. See Figs. 5, 6 and 7.

FRAMED AND GLAZED SLIDING DOORS.

Base Section, Fig. 4, and **Top,** Fig. 3, as before.

Bookcase Sections, Fig. 3 and Fig. ,6 are constructed in a similar way as described for glass sliding doors. The front rails should be a little wider for the corresponding wider running grooves. The top and bottom separating beads (F), Fig. 6, should be left dry, being fixed by fine screws, gauge 2. The hardwood facing fillets (G), Fig. 6, are also left dry for removal of the doors at any time, and are screwed on to the ends and rails with N-plated flat-round head screws, being mitred at the corners.

The thin glass panels to the framed doors may be puttied or beaded in. The door joint is shown in Fig. 4. Well wax the running surfaces.

HINGED DOORS.

Base Section, Fig. 4, and Top, Fig. 3, as before.

Bookcase Sections, Fig. 3 and Fig. 7. No rebating or grooving for the doors is required. Screw on a $\frac{1}{2}$ in. by $\frac{1}{4}$ in. stop beneath the top rail (H), Fig. 7. The joint of the doors is shown in Fig. 4. Each door is hung on a pair of 2 in. brass butt hinges. The meeting stiles are rebated and beaded in the usual way with a bolt behind the bottom of the left hand door and a bullet catch fitted to the right hand door. Very small wood or metal knobs are fixed to each pair of doors just a little above centre.

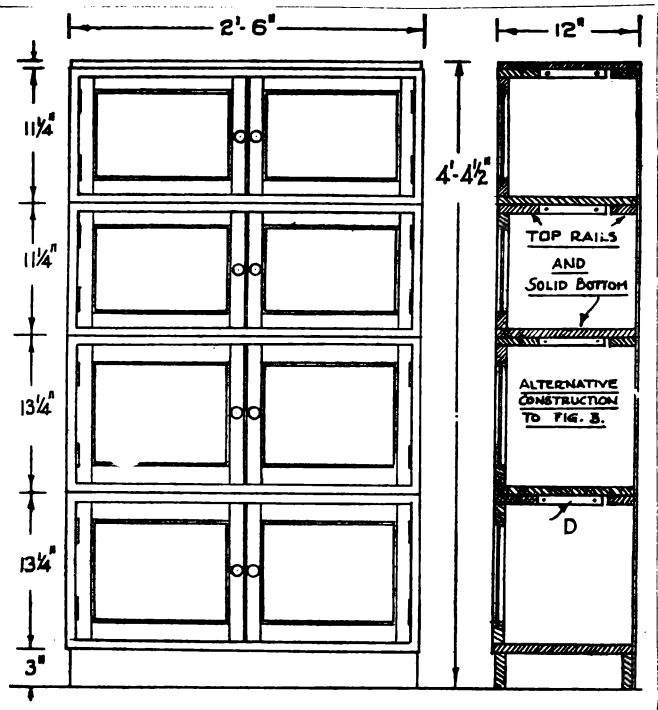


FIG. 2. FRONT ELEVATION AND SIDE SECTION OF HINGED DOOR TYPE.
General sizes are suitable to all types.

C. LIST FOR BOOKSHELF UNIT Framed Sliding Door Type

Plinth and Top as glass door type.

		Long ft.	ins.	Wide ins.	Thick ins.
A	2 Bookcase ends	1	1¼	11¾	¾
	2 Front rails .	2	5½	4	¾
	2 Back rails .	2	5½	2	¾
B	1 for 2 Beads .	2	4½	1¼	3/16
C	1 Bookcase back	2	5½	13¼	¼
D	4 Blocks . .		5½	1¼	¾
E	1 Bottom . .	2	4½	9½	¼
	3 Door stiles .	1	0¼	1¼	⅞
	1 ditto . .	1	0¼	2	⅞
	4 Door rails .	1	1¾	1¼	⅞
	Fillets . . .	2	6	¾	¼
G	2 ditto . . .	1	1¼	¾	¼

A, G, and Stiles 2 ins. shorter, and (C) 2 ins. narrower for upper sections.

CUTTING LIST FOR BOOKSHELF UNIT ONLY

Hinged Door Type—2 ft. 6 ins. wide, alternative construction, Fig. 2.

Plinth and Top as before.

		Long ft.	ins.	Wide ins.	Thick ins.
A	2 Ends.. ..	1	1¼	12	¾
	1 Top rail ..	2	5½	3	¾
	1 Bk. rail ..	2	5½	2	¾
	1 Bottom ..	2	5½	11¾	¾
H	1 Stop	2	4½	½	¼
	2 Door stiles ..		11¾	1½	⅞
	2 ditto ..		11¾	1¾	⅞
	4 Door rails ..	1	1¾	1½	⅞
C	1 Bookcase back	2	5½	13¼	¼

A and Door Stiles 2 ins. shorter, (C) 2 ins. narrower for upper sections.

CUTTING LIST FOR 3 SECTIONS Glass Sliding Door Type—2 ft. 6 ins. wide.

		Long ft.	ins.	Wide ins.	Thick ins.
	1 Plinth front	2	5½	3	⅞
	2 Plinth ends ..		11¾	3	⅞
	1 Plinth back	2	5	3	⅞
A	2 Bookcase ends	1	1¼	12	¾
	2 Front rails ..	2	5½	3½	¾
	2 Back rails ..	2	5½	2	¾
B	1 for 2 Beads ..	2	4½	1¼	3/16
C	1 Bookcase back	2	5½	13¼	¼
D	4 Blocks ..		6	1¼	¾
E	1 Bottom ..	2	4½	10½	¼
	2 Top frame ..	2	5½	2	⅝
	2 ditto ..		10	2	⅝
	1 Frame facing	2	6	⅝	¼
	2 ditto ..	1	0	⅝	¼
	1 Top	2	6	12	3/16

(A) 2 ins. shorter and (C) 2 ins. narrower for upper sections.

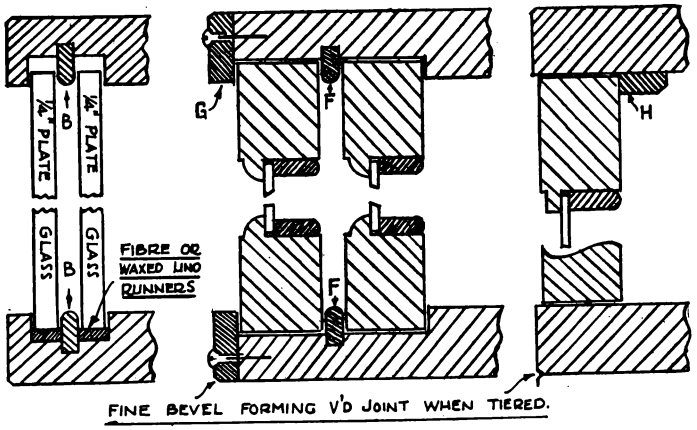


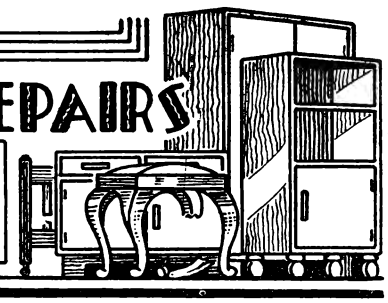
FIG. 5. SECTION OF GLASS DOOR

FIG. 6. SLIDING WOOD FRAMED DOORS

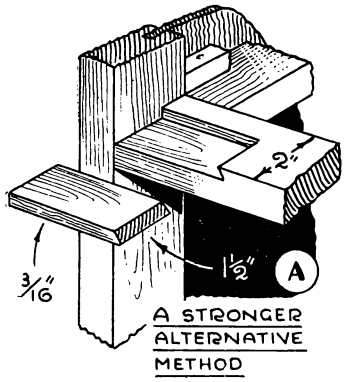
FIG. 7. SECTION OF HINGED DOOR

Old and new FURNITURE REPAIRS

DRAWER AND BEARER FAULTS



When dealing with badly-fitting drawers, particularly in tallboy chests, always make a point of checking the numbers marked on each drawer (usually at the back) to see that they are in their respective apertures. It frequently happens that, to facilitate matters in carrying such furniture upstairs, the drawers are removed. It also happens—and this is where the trouble is apt to begin—that there are several drawers which are approximately the same size in width. Naturally, if the numerical order is mixed, these may fit, but never in the same way when each drawer was fitted to its own aperture by the maker. Thus, it pays to check the numerical order before attempting to ease troublesome drawers. It would not be the first time that a man has "eased" a tight drawer which, in fact, had been merely pushed into the wrong aperture, presumably by furniture porters or van-men.



IN order to cover most drawer faults a tallboy has been selected, this having five drawers. Each drawer has a very common fault found in old—and even new—furniture. Here is how one can best deal with them.

Worn Bearers.—The trouble at A, Fig. 1, is worn bearers. While runners might take up most wear and tear, the top ends of the bearer rails generally suffer more. A heavily laden drawer, half withdrawn, creates a forced weight and strain on the bearer and its joints. The remedy is to fit a new bearer, and this is easy enough if the ends of the old one are a push, trench-dovetailed fit (a method frequently adopted when gables are solid, the trenching being covered by the drawer runners).

If tenoned, or dowelled, however, the amount of work involved in order to fit a bearer is hardly worth while. The alternative is to get a fresh "leading edge" the full length of the bearer. One can, however, save much time and bother—and extra wood—by facing the bearer ends only (A, Fig. 1). The new pieces are a dovetail fit at one end. Recesses cut in the rail must not be too deep, ¼ in. being the maximum. The length, of course, depends on the state of the bearer at the face. An extremely tight fit should be avoided to prevent forcing the bearer joint away from the leg or gable.

When glued in position, it is advisable to drive an oval nail through the new pieces near the plain end for extra strength, the head being sunk and concealed with plastic wood or wax. New pieces of wood, incidentally, should match the original wood as much as possible.

Runners and Guides.—When runners are worn away, do not fit new ones. Remove the old runners carefully and replace them *upside down*. This saves wood, and the busy worker will appreciate the time saved, moreover. The undersides of the runners are usually quite flat so that, when reversed, they serve as new runners. Regarding guide slips, they may need to be replaced; much depends on their condition. If square in section, they can be turned over on one side. When the runners and guides have been altered with new facings on bearers, a resultant hollow is formed, as at X, Fig. 1. This is best levelled up with plastic wood.

Tight Drawers.—The fault at B is tightness of the drawer sides. Before easing by planing, see whether the tightness is due to swollen wood or loose dovetail pins forced outwards by

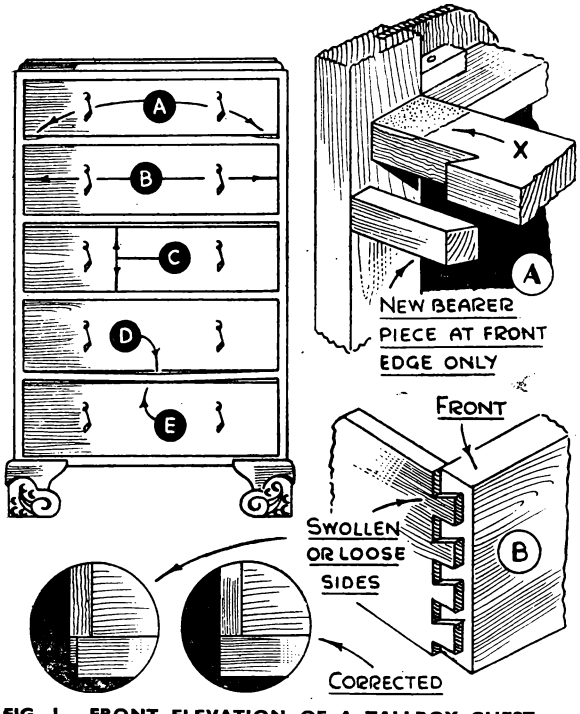


FIG. 1. FRONT ELEVATION OF A TALLBOY CHEST. A, B, C, D, and E show common drawer and bearer faults. A and B are corrected as shown.

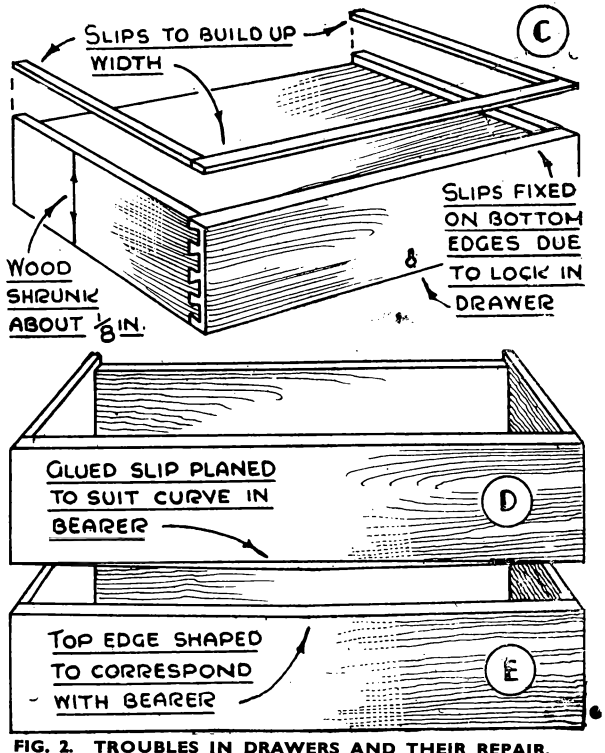


FIG. 2. TROUBLES IN DRAWERS AND THEIR REPAIR. Shrunken fronts are built up as at C. Curved drawer bearers necessitate easing drawers D and E.

Make sure where trouble lies before repairing

a warping in the side piece. If the sides are swollen one can only rectify matters by planing the surface flush with the front end of the drawer.

When sticking out as in the exaggerated view the sides are knocked out, glued, and malleted (or cramped) back. The judicious use of oval nails will keep the pins held down ; by the way, be sure to punch all nail heads afterwards.

Having planed the drawer sides, rub them smooth with glasspaper and rub with a piece of tallow (candle wax), not bees wax. The former is less tacky than the latter ; it is often more beneficial than planing or glasspapering. When planing a tightly-fitting drawer, plane over the shiny places only, for that is where the trouble mainly lies.

Shrunken Drawers.—Badly seasoned wood is the cause fo shrinkage in drawers. If the drawer is fitted with a lock, suitable slips—to build up the width of the drawer— are affixed to the bottom edges (C, Fig. 2). To ensure a neat join at the front the drawer edges should be trued up to give a sharp edge. As the drawer runs on the slips, no nails should be used, except as a temporary measure, i.e., until the glue sets. The slips should be $\frac{1}{8}$ in. thicker than necessary for fitting purposes.

When drawer sides are badly worn, new slips can be laid down alongside the bottom edges, gluing them to the plywood bottom. Alternatively, if the plywood bottom is grooved in the sides, one can remove the worn wood level with the plywood, the new slips going on top.

A Bent Bearer.—Drawer bearers, curved slightly in the centre, give trouble. If between two drawers it affects both. Assuming the bend is downwards, the bottom edge of the upper drawer can be slipped, then the slip planed to suit the curvature of the bearer (D, Fig. 2). The lower drawer (E) has its top edge planed or spokeshaved to correspond.

This is a quick, simple way to remedy the defect, but it is often rather conspicuous. At F, Fig. 3, is shown the only practical manner by which a curved bearer can be made straight—permanently. It is useless, of course, forcing a wooden post between the faulty bearer to raise it up, then damping the bearer in the hope that, by the time it has dried properly (in the course of a few days), it will remain straight when the supporting post is removed. It may do so but the curve generally returns as badly as ever.

The writer recommends the fitting of flat wedges of wood in the centre, the ends being a dovetail fit (see inset detail). If the bend is downwards, the wedge goes to the top, and vice versa.

Before cutting the recess for the wedge force a wooden post beneath the bearer. The post should be $\frac{1}{8}$ in. longer to force the bearer $\frac{1}{8}$ in. out of true alignment. Having cut the recess and fitted the wedge the post is knocked away. The wedge,

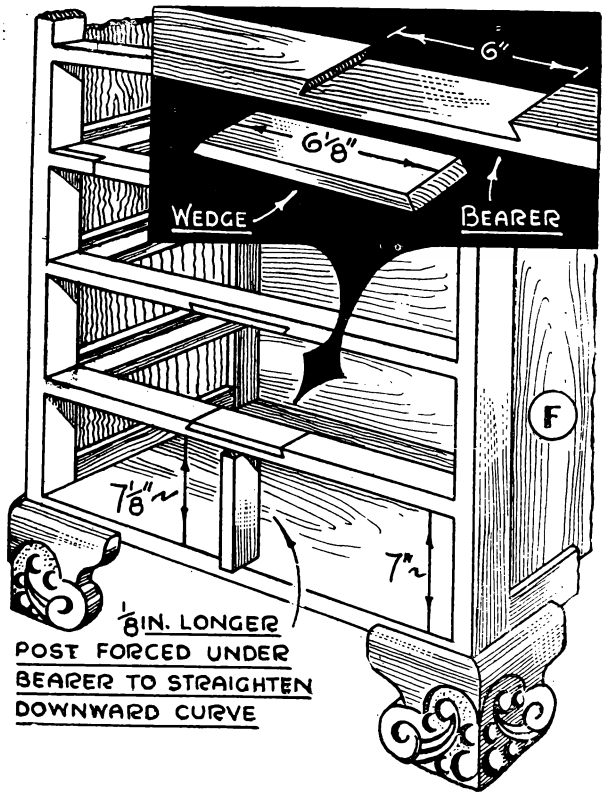


FIG. 3. STRAIGHTENING BENT BEARERS.
The method ensures that they will remain straight.

being slightly longer than necessary (as a result of the extra upward lift given by the post), becomes squeezed tightly in position, thereby checking the tendency of the bearer to bend downwards. Thus, the bearer becomes—and remains—straight.

Should there still be a slight curvature a slightly longer wedge will rectify matters. After the right length of wedge has been found it is glued in position. Some cabinet-makers dislike having the wedge joint showing at the face of the bearer. They prefer to keep it sitting inwards $\frac{1}{2}$ in. or so.

(256)

DUCK HOUSE

(*Continued from page* 68)

Sides.—The front and back are joined by the sides (see Fig. 5), which are nailed to the end battens. A ridge-piece 6 ft. 6 ins. long by 5 ins. deep is fitted across the top corners of the front and back, notches $1\frac{1}{2}$ ins. deep being cut in them to receive it, while $\frac{1}{2}$ in. notches are cut in the ridge.

Roof.—The weather boards are nailed down on one side of the roof, but the other side is made to open for cleaning the house and collecting eggs. The boards are assembled and are held together with three cross battens the front ends of which must be kept in to allow the door to close.

The front and back edges of both sides of the roof are finished with battens 2 ins. wide nailed on their edge, as shown in Fig. 5, while it may be advisable to nail another batten across the middle of the fixed side of the roof. In place of the weather boards ordinary boards covered with roofing felt will answer quite well. A 4 ins. by 1 in. weathered capping is nailed above the ridge-piece as shown in Fig. 6.

Nest Boxes.—The nest boxes fit inside the house as shown in Fig. 5, and may be made up in a set of two or three as desired. The ends and divisions are cut to the shape and dimensions shown in Fig. 7., $1\frac{1}{2}$ ins. battens being nailed at the top and bottom edges. Spacing of the divisions should accord with the dimensions shown at Fig. 8. A bottom and back are nailed on, together with a front bottom batten 4 ins. wide, and a top batten 2 ins. wide. The house should be treated with a wood preservative outside and lime-washed inside.

Water Pond.—There are various ways of providing water for the birds.

A fairly large but shallow excavation could be made to form a square, oblong or round pond, and covered inside with a thick lining of clay it would be fairly serviceable. On the other hand a shallow oblong pond shaped as shown in Figs. 9 and 10, lined with old bricks or concrete slabs and finished with a rendering of sand and cement, would not require a great amount of time or material. The sloping end allows the birds to enter and leave the water easily, and if the pond could be made at the crest of sloping ground an outlet pipe could be easily arranged. (261)

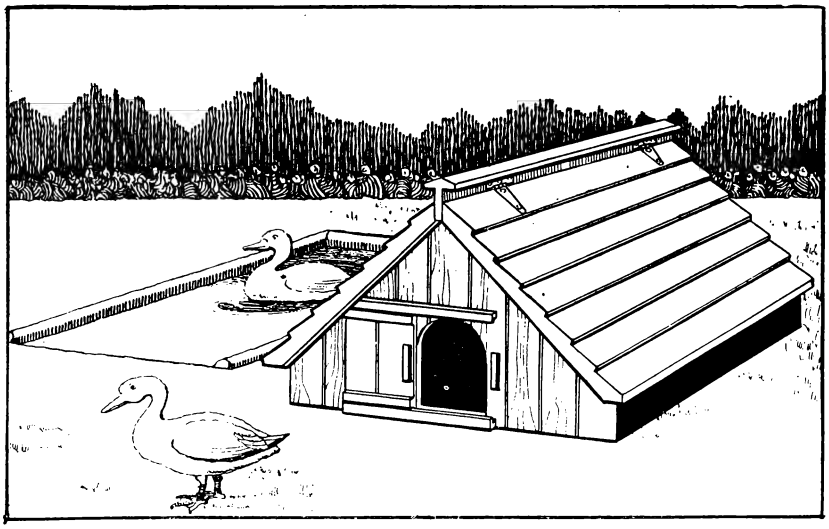


FIG. 1. SUITABLE FOR A FEW BIRDS. One side of the roof is hinged to enable the egg boxes to be reached easily and to facilitate cleaning. Over-all size about 6 ft. by 4 ft. 6 ins.

The many amateur poultry keepers numbered amongst our readers will find that a few ducks may be kept with profit if they have sufficient space. The natural habits of the birds must of course be considered; they do not thrive well when kept confined like fowls, but should be allowed a certain amount of freedom, and some water should be available. The Aylesbury breed is perhaps the best both from the point of view of its eggs and flesh. Ducks are much hardier than fowls and do not require to be kept so dry and warm. Where ample range is available slugs and worms form a great part of their feeding. Here we describe how to build a simple duck house, and suggest some easy methods of arranging a pond for them.

Building a Duck House

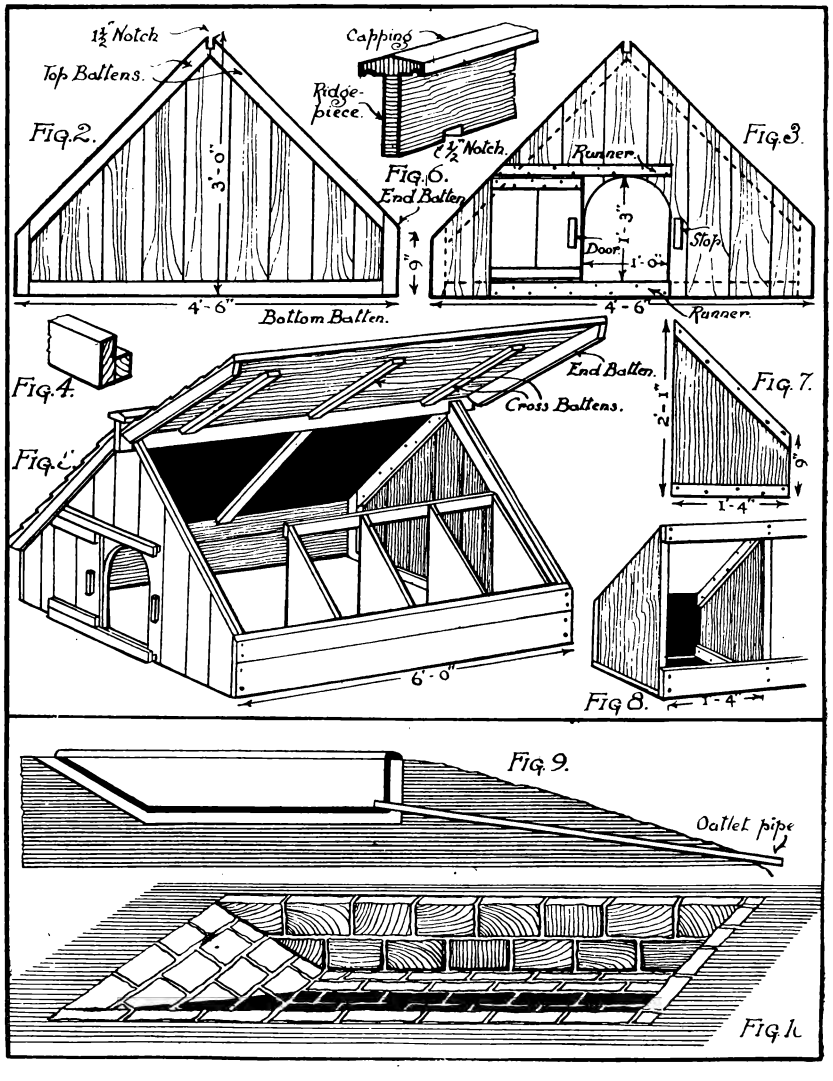
FOR keeping a few birds the house shown in Fig. 1 may be 6 ft. long by 4 ft. 6 ins. wide and 3 ft. high. Almost any kind of wood may be pressed into service in these days of scarcity, but the best results would be obtained if ¾ in. or 1 in. matched boarding could be used for the ends and sides, and rebated weather boarding for the roof.

Back.—The back (Fig. 2) should be made first by assembling the boards and nailing on a bottom batten, the top edges being left rough. The positions of the top battens should then be marked (observing the dimensions given), and nailed on. Both the top and bottom battens could be allowed to extend rather farther at the ends than will eventually be necessary. The end battens may then be placed above, their positions marked, and the ends of the top and bottom battens cut to allow the end battens to be nailed in place. All the battens are 2 ins. wide by ¾ in. or 1 in. thick.

Front.—The front is made up in exactly the same way as the back, and the semi-circular headed opening is cut in the middle. This is covered with a sliding-door, fitted in runners at the top and bottom. The door should be about ½ in. wider than the opening, and battens 1½ ins. wide are nailed across ¾ in. in from the top and bottom edges.

The bottom runner is 2 ins. wide, with a 1½ in. piece nailed inside to form the groove (see Fig. 4), but the top runner need only be 1½ ins. wide with a 1 in. piece nailed inside. A 1 in. square piece of stuff about 4 ins. long, nailed ¼ in. beyond the opening will serve as a stop for the door, and a similar piece nailed on the door will form a suitable handle.

(*Continued on page* 67)



FIGS. 2-10. GENERAL DETAILS OF CONSTRUCTION AND SIZES

The World's Timber
IS IT TO CONTINUE?

"THE TRUTH IS THAT THERE IS NO SHORTAGE OF STANDING TIMBER AND NO LACK OF PRODUCTION CAPACITY."—*Timber Development Association.*

OFTEN during these last four years it may have seemed that everything in the world was coming to an end. Much *has* come to an end; and, when even in country districts we find women scouring the woods to pick up dead wood for fuel, it is perhaps excusable if sometimes we fear that the world's timber supplies are to be inadequate for the future.

They are *not* going to fail us; we forget the size of the world and we overlook its natural resources. Just a few facts here are worth noting. In the first place over *one-fifth* of the globe's land surface is covered by timber forest. If we calculate the area of this it amounts to well over *eleven and a half million square miles*. Not only has this area been left practically untouched by war, but the very fact of war has in the meantime restricted output.

There is no question that, many years ago, when the universal possibilities of timber were first explored, vast tracts were ruthlessly devastated without thought to the morrow. The result, in time, was a drop in the supply of such valuable woods as Quebec yellow pine, West Indian mahogany and others. But this havoc has been arrested. Timber, after all, is a crop, just as wheat and oats are crops, and the great timber-exporting countries now work on systems of re-afforestation which ensure that the quantity of *standing* timber is not allowed to fall below a certain figure. Even in smaller states, where systems are yet in their infancy, the law of natural regeneration remains and timber continues to grow.

No, as the Timber Development Association assures us, there is no shortage in standing timber; and so far, of the growth of these reserves, only a mere fraction is felled annually and converted by the timber merchant.

THE WORLD'S TIMBER SUPPLIES

Softwoods.—Now what are the world's reserves? Practically all the softwood we consume is imported, and it is interesting to note that from Russia, Finland, and Sweden we took 63%, from Canada 18%, and from other countries 19%. During the five years before the war (1935-1939) we imported from all countries an average of 352¼ million cubit feet of softwoods per annum. The figure*, taken from the Board of Trade returns, is almost incredible, and we may well wonder how we have struggled through the intervening years.

Russia's reserves, about a third of that of the whole world, are almost unlimited, and although the Caucasian regions may have been affected and internal demands may later be urgent, peace will soon restore exports to their former level. In Sweden, again, all forests are under Government ownership or control and her surplus stocks must be considerable. Sweden, moreover, has (undamaged by war) a large tonnage of shipping available for transport. Finland, Norway and Poland are in a less advantageous position. That the Norwegian and Polish forests have been exploited by Germany can hardly be doubted, and Finland has lost the Karelian supplies to Russia. In all three cases, however, what one country has lost has meant gain to another, and the forest areas are still there.

Canada's vast regions have hardly been affected by war. Of her total land area 35% is forest, and it is estimated that 275 million acres are available for immediate felling. Thus, in softwoods there need be no apprehension as to any post-war shortage.

If fears are sometimes held as to a possible lack of timber for new houses after the war, these may be dismissed. Taking a normal type of home on a large housing estate, it will be found that the timber consumed averages about 330 cubic feet per home. A suggested programme is the erection of four million such houses, the building of these to be spread over *ten* years. This would mean the absorption of 123 million cubic feet per year—a figure which is by no means perturbing in view of our total annual imports. Between 1919 and 1939 it is estimated that only about 20% of softwoods imported was required for housing.

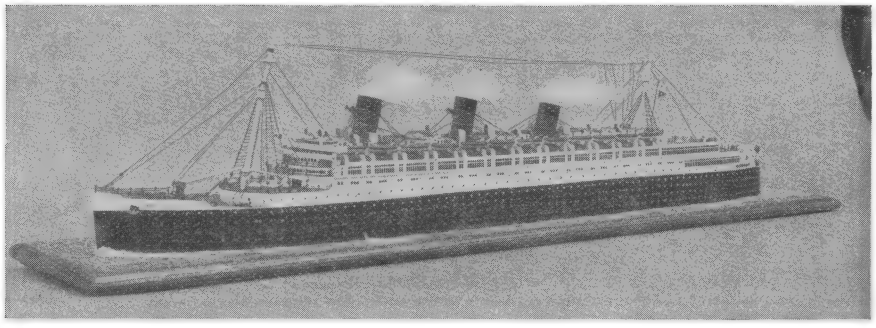
HARDWOOD PROSPECTS

Hardwoods.—As, after the war, the paramount demand will be for building and general reconstruction work, hardwoods for a time may have to yield to softwoods. This, whilst obvious, may not satisfy the average reader who is longing to again handle some nice oak or mahogany, or one or other of the favourite Empire timbers. Furniture prices will still continue to startle and there will be a strong urge to make one's own household pieces.

But here again, world resources must be remembered. There can be little doubt that, throughout Europe, trade reorganisation must precede supply on former lines. Deficiencies and restrictions are inevitable. Elsewhere, in America and Canada, in West Africa, South America and Australia, quantities of felled timber (temperate and tropical) have accumulated, and vast forests are ready for felling. No excessive demand which production cannot satisfy is anticipated. Of *standing* timber there is no shortage, and outside Europe the facilities for production in the great export centres has hardly been affected. The heaviest strain at first will fall on shipping space, although here again the cessation of hostilities will release a huge tonnage which has been monopolised for war purposes. Apart from this, a fair supply of home-grown hardwood will be available, and we already know of the Government plan to plant five million acres to replace war-time felling.

The Timber Development Association (75, Cannon Street, London E.C., 4) has recently published a most instructive handbook entitled "World Timber Supplies," in which it gives the assurance which is printed at the head of this article. We understand that the booklet may be obtained on application, with 2d. enclosed for postage. Address as above. (259)

*The figure given is 2,135,000 "standards," a standard being equivalent to 165 cubic feet (Petrograd Standard).

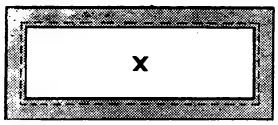


MODEL OF THE "QUEEN MARY" MADE BY MR. J. A. WHITTAKER

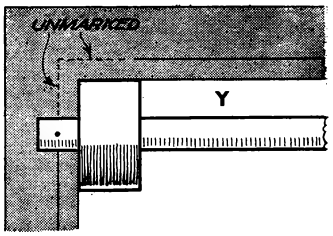
Readers may recall that in April, 1936, we gave a design for a model of the "Queen Mary." We have been interested to learn that a completed model of this is to be raffled in aid of the Watford and District Peace Memorial Hospital. Tickets which are a receipt for a donation to the hospital are available at 6d. each, and can be obtained from Mr. A. G. Symmons, the Sun Engraving Co., Ltd., Whippendell Road, Watford, Herts. Not less than five tickets will be supplied by post, for which a postal order for 2s. 6d. should be sent. The draw will take place on April 17th.

Instructions on making the model including printed paper sides for sticking to the model are available at 6d., post 1d. Paper sides only supplied at 3d., post 2½d. Evans Bros., Ltd., 44 Clarence Road, St.Albans, Herts.

The "Awkward-Job" Gauge

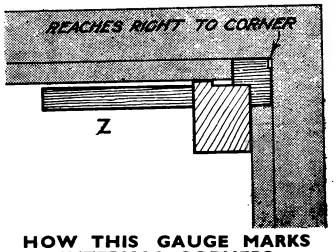


FRAMEWORK TO BE MARKED AS SHOWN BY DOTTED LINE



LIMITATIONS OF NORMAL MARKING GAUGE.

For straightforward work the marking or cutting gauge does its work perfectly well, but have you ever had a job to do which it will not tackle? Suppose you have a frame and wish to mark a rebate around the inner edge as at X. The ordinary gauge could not reach into the corners because the fence would be in the way as shown at Y. The use of this special gauge enables the mark to be taken completely round as at Z.



HOW THIS GAUGE MARKS INTERNAL CORNERS

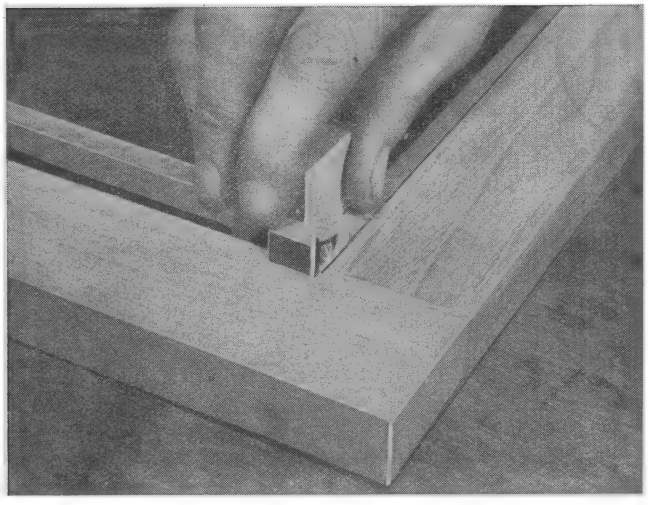
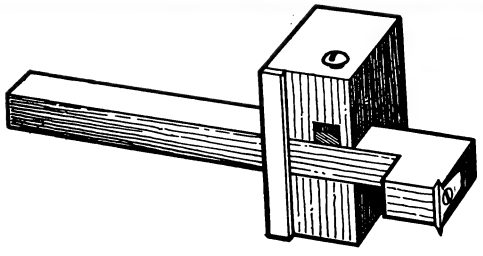


FIG. 1. COMPLETED GAUGE AND HOW IT IS USED.



IT will be seen that the fence of the gauge (C) is flush with the stem (A) at one side, except for a thin cross-piece (D). This means that the stem can reach close up to the edge of the wood without the fence fouling it (see Y and Z above). In addition, the stem has a projection (B) at one end to which the cutter is fixed. Thus the cutter can reach beyond the corner by the amount of the projection. As given in Fig. 3, this projection is $\frac{1}{4}$ in., but it could be increased if a rebate wider than $\frac{1}{4}$ in. were wanted. Actually it is not advisable to make the projection more than is likely to be needed because the gauge might be awkward to keep square.

Note that the cutter (E) is double, having two marking points. This enables it to reach in from either right or left. It is obviously imperative that the cutter is square so that both points project the same amount from the fence.

Stem.—Since only narrow rebates will have to be gauged, the stem need be no more than 4 ins. long. The projection at the end stands out $\frac{5}{16}$ in., this (allowing $\frac{1}{16}$ in. for the cross-piece D) enables rebates up to $\frac{1}{4}$ in. wide to be marked. (The point here, of course, is that the projection enables the marker to reach to the adjoining rebate.) For wider rebates the projection would have to be increased accordingly, but here it would be as well to increase all the dimensions of the gauge.

Cut the stem to length, plane to the over-all size and mark the part to be cut away with gauge and square. Prepare the cutter from a piece of old saw blade or scraper, and bore the fixing hole, countersinking it at one side. Place it in position, drive in the screw to hold it, and mark round. Remove screw and cut recess. Replace and see that it is square.

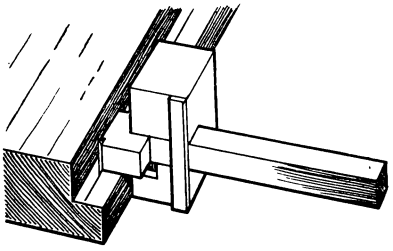
Fence.—Plane to finished size and cut stem notch to enable stem to move freely without play. Glue and pin cross-piece D to bottom edge. To hold the fence in position a nut G and bolt H are used. To prevent damage to the stem a little block F is fitted beneath the end of the bolt. It can be either wood or metal. In both cases it has a slight recess at one side so that the bolt in fitting into it prevents it from falling out. In wood the bolt will rapidly form its own recess.

Cut the recess for the nut and block, and finally bore the hole for the bolt. The latter might be $\frac{1}{8}$ in. or $\frac{5}{16}$ in.

(240)

FIG. 2 (*Right*). GAUGE USED FOR MARKING INSIDE A REBATE.

Fence is 1⅛ in. by 1 in. by ⅛ in. Stem is 4 ins. by ⅜ in. square.



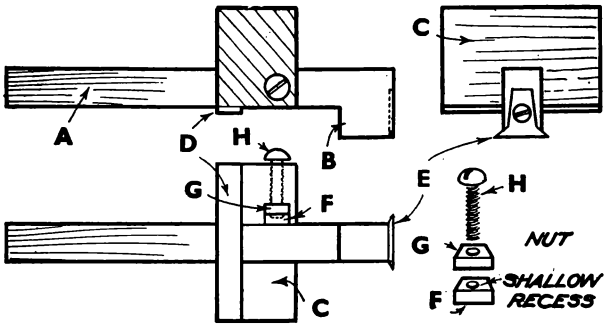


FIG. 3. ELEVATIONS AND PLAN HALF SIZE.

NEAT DESIGN FOR

STATIONERY CABINET

If carried out in mahogany an excellent effect is secured by panelling the base, end slabs, case front and lid with $\frac{1}{16}$ in. black inlaid strings. In this case the toes might also be black. The same treatment looks well in walnut.

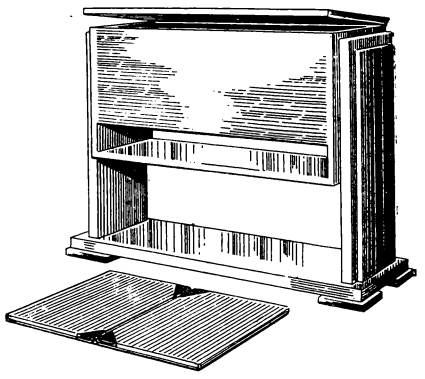


FIG. 1. REQUIRING LITTLE TIMBER

You could use up small oddments of hardwood for this. Main sizes are 13½ ins. long, and 11 ins. high, and 4½ ins. deep.

UNLESS this cabinet is to be veneered, use walnut or mahogany; or if the grain is mild, oak. The parts required (all small) are these.

		Long ft.	Wide ins.	Thick ins.
(A)	2 Case sides	11	4	$\frac{3}{8}$
(B)	2 Case ends	6	$3\frac{3}{4}$	$\frac{3}{8}$
(C)	Shelf	11	$3\frac{3}{4}$	$\frac{1}{4}$ or $\frac{3}{8}$
(D)	Bottom	11	$3\frac{3}{4}$	$\frac{1}{4}$ or $\frac{3}{8}$
(E)	2 Divisions	$10\frac{1}{2}$	5	$\frac{1}{8}$
(F)	Lid	11	4	$\frac{3}{8}$
(G)	Base	13	$3\frac{3}{4}$	$\frac{1}{2}$
(H)	2 Standards	10	$3\frac{1}{4}$	$\frac{7}{16}$
(J)	2 Slabs	$9\frac{1}{4}$	$2\frac{1}{4}$	$\frac{1}{4}$
(K)	4 Toes, from	$8\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{4}$

Thickness given represents the net finished sizes; lengths allow for joints.

Case.—The piece may be taken as in two parts: (1) the stationery container, (2) base and standard supports.

The case sides and ends (A and B) may be dovetailed, or simply rebated and glued. Sides are about 2 ins. narrower than ends in order to provide an open shelf underneath. The shelf (C) is rebated in and screwed, whilst the case bottom (D) is glued to under edges of sides (A) and panel-pinned. The two thin divisions (E) are housed to ends and glued. The front one may be ½ in. narrower than back one, and either one or two spaces should be partitioned for envelopes, postcards, etc.

Lid (F) should have a fine chamfer run around the upper edges, or if preferred the edges may be rounded or left square. To permit of lifting, the lid shows an overhang of ¼ in. at front, the line being either straight or bowed. If a flush finish is preferred a small wood knob will be fitted on top; The lid is hinged with a pair of 1½ in. butts, and a small brass lid stay should be added.

Base and Standards.—For the base or plinth (G) use ½ in. wood, finishing the standards (H) to $\frac{7}{16}$ in. (that is, ½ in. bare). The latter are tenoned to the base, care being taken to set out the mortises exactly to the length of stationery case. Slabs (J) are glued in position and may also be notched to base. The toes (2 ins. by 1½ in.) project ¼ in. each way and thus give stability to the whole. They are glued on and screwed from below.

When screwing the stationery case to the standards (from inside) test carefully for squareness. (110)

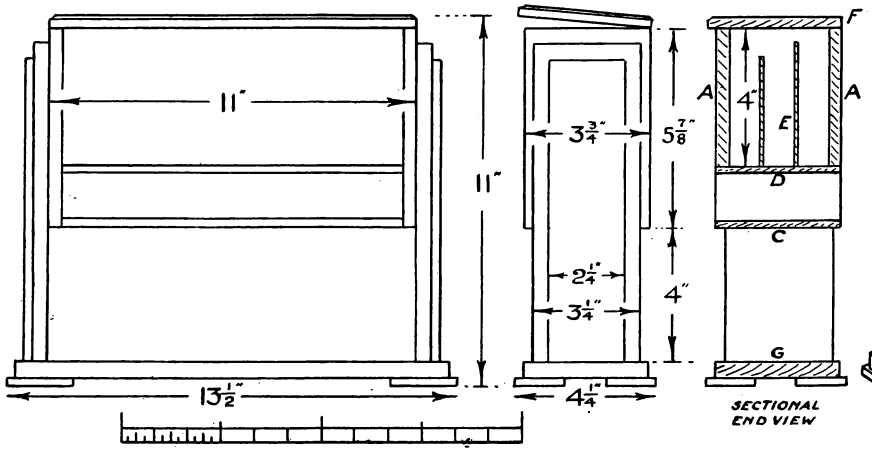


FIG. 2. FRONT AND SIDE ELEVATIONS AND SIDE SECTION DRAWN TO SCALE.

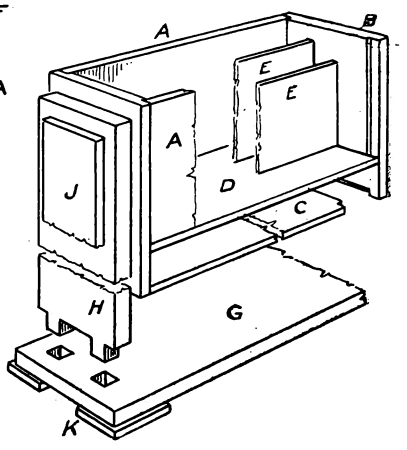


FIG. 3. CONSTRUCTION DETAILS

Note for Overseas Readers.—The fact that goods made of raw materials in short supply owing to war conditions are advertised in this magazine should not be taken as an indication that they are necessarily available for export.

RUBBER-TYRED WHEELS

A reader has asked how solid rubber tyres are fixed to pram wheels, etc. Actually it is practically impossible to obtain rubber tyres nowadays, but we pass on the method of fixing as a matter of interest.

The tyre is cut off to length, making it about 2 ins. short in a 24-in. wheel. This enables it to be sprung on and to keep in position. The cuts at the ends are not made square because this would cause a gap at the outside, but are at a slight angle, the inner side slightly shorter than the outside. Embedded in the rubber is a spiral wire, rather like a spring, and it is this that enables the ends to be joined. The rubber at one end is cut back, leaving about ½ in. of wire exposed (the length varies with the size of tyre). The flush end is fixed in the vice and the other given a few turns in an anti-clockwise direction. The projecting wire is then pressed into the end in the vice and turned so that it enters rather like a corkscrew, the tyre being "unturned" in the process. All that remains is to spring it into the groove in the wheel.

Your local collector still expects your weekly bundle of waste paper. It is needed for the war effort as urgently as ever. Please save every scrap. If you are still having fires remember to light them with shavings, not paper.

The Question Box

REGULATIONS.—These columns are for the benefit of readers who find themselves faced with some practical difficulty. Full particulars should be clearly stated, and if possible a rough sketch enclosed. As, too, the Editor may require further information, a stamped addressed envelope should be sent. Replies to queries of general interest will be given in these pages. Readers will understand that we cannot, of course, prepare special designs for individual requirements. With each query must be enclosed a Coupon, see foot of page iv of cover. Queries, with name and full address of sender, should be addressed to: The Editor, "The Woodworker," Montague House, Russell Square, W.C.1.

RADIOGRAM **A.P. (Catford) sends details of a radio set he has, and asks advice as to how he can build it horizontally into a cabinet, and also incorporate a gramophone. The set has two speakers.**

Reply.—The cabinet shown here works out at 3 ft. wide over base and a full 3 ft. high. Your reference to the wood you have is not sufficiently detailed for us to say more than that you might use the ½ in. stuff for the cabinet sides, top, and bottom; or failing this the ⅜ in. thickness lined up with reinforcing strips. The shelf upon which the set is mounted should be of ½ in. thickness, additional support being also available under from the vertical divisions of the record space. It would be best to dovetail this shelf to the sides if the wood is of sufficient thickness; otherwise the shelf had better be supported by lengths of 1½ ins. by ⅝ in. or ⅞ in. slip screwed to the cabinet sides.

The balanced arrangement of the two speakers will provide a serviceable space for the gramophone, but for more convenient access to the turntable you may find it useful to mount it upon a sliding shelf to travel between two fillets and slide forward a few inches. Remember to provide a stop to limit the projection against accident. The stand shows a full 8 ins. high and the legs for this could be obtained by gluing up lengths of your ⅞ in. wood to finish about 1¾ ins. square. Rails could be 2 ins. by ⅞ in. and dovetailed or tenoned into position with blocks in the inner angles. A 3 ins. wide stretcher dovetailed into the end rails might be considered to counteract sag.

Figs. 2 and 3 indicate several ways of using up your wood according to its sizes. The lower doors are made up of three or more narrow strips of hardwood tongued together. If of ⅜ in. thickness it is backed by a frame to stiffen the fronts and also provide a rebate for closing flush or a flush panelled door with mitred lengths of cross-cut grain may be possible. (234)

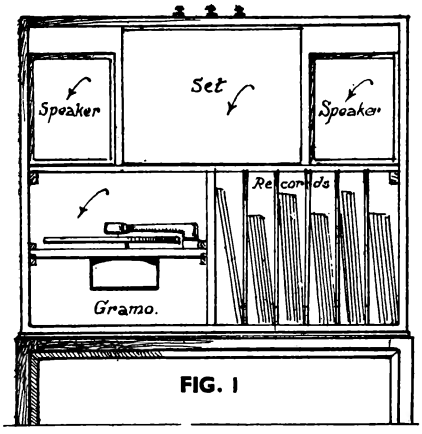


FIG. 1

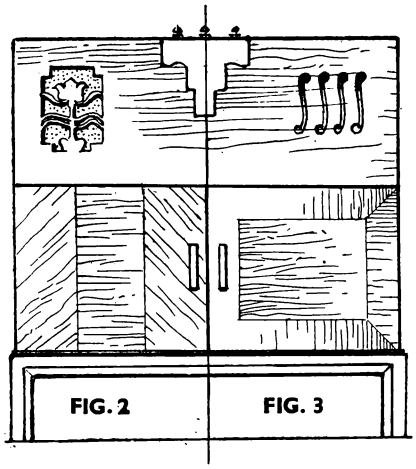


FIG. 2 FIG. 3

CONSOLE-TYPE RADIOGRAM

STAND FOR TABLE TENNIS TOP **A.N.B. (Northwich) has a table tennis top for which he wishes to make a portable stand, and asks assistance.**

Reply.—A stand for table tennis table-top size 9 ft. by 5 ft. can be made from 2 ins. by 2 ins. wood as shown in Fig. 1 end view and Fig. 2 side. Four frames will be required, i.e., a pair under each half of the folding top and all hinged to fold flat as indicated by dotted lines. Eight battens will be required for hingeing the legs, and four blocks of equal thickness with the battens for hingeing the struts. The frames should be mortised and tenoned together and pegged and hinged with a heavy make of butts. The struts, similarly hinged, should swing back to notch snugly on to the lower rails of frames where they are held by thumb-screws. Figs. 3 and 4 show respective strut and frame folding.

A separate folding table support which answers well is that made after the manner of the old barrack-room table, a part elevation of one end being seen at Fig. 5. The frames are made up of 3 ins. by 1½ ins uprights and 3½ ins. by 1¼ ins. rails, mortised and tenoned, together and pegged, Each is hinged with 3-in. brass butts to a 4 ins. by 1¼ ins. rail screwed to the table top. The simple method of securing rigidity used is by means of a ⅝-in. iron rod support, the iron being bent near centre to form a cranked portion. This revolves in a metal slot. The sloping drop-lengths, also cranked at their extremities, may be sprung by hand into position in the slots fixed to the lower framing rail. Figs. 5 and 6. (236)

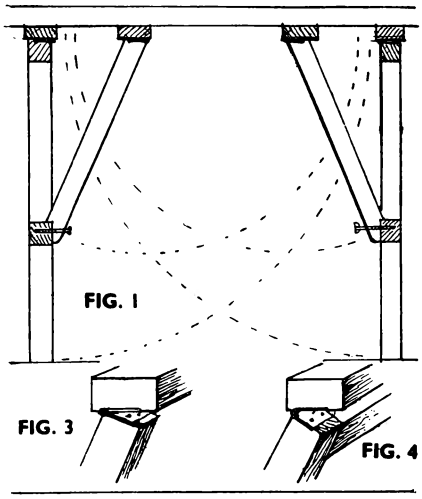


FIG. 1

FIG. 3 FIG. 4

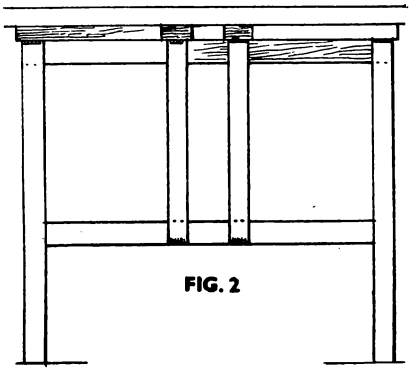


FIG. 2

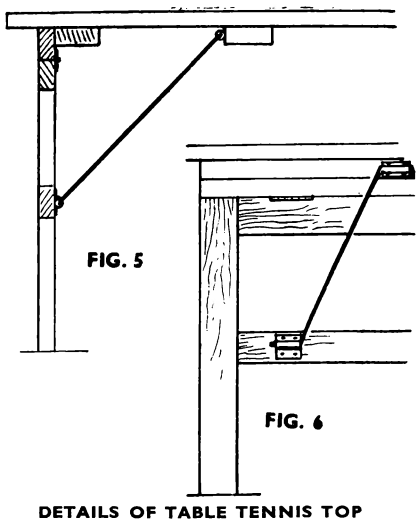


FIG. 5 FIG. 6

DETAILS OF TABLE TENNIS TOP

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